

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED / ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER P64053US0
INTERNATIONAL APPLICATION NO. PCT/FR99/00641		US APPLICATION NO. (IF ANY) UNDER 35 U.S.C. 371 09/7423665
INTERNATIONAL FILING DATE 19 March 1999		PRIORITY DATE CLAIMED 23 March 1998
TITLE OF INVENTION NOVEL CLEAR BEVERAGE OPTIONALLY ALCOHOLIC CONTAINING ANETHOL AND CLOUDY DILUTED BEVERAGE OBTAINED BY DILUTION		
APPLICANT(S) FOR DO/EO/US Brigitte FALCONNIER		

Applicant herein submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for Internatl. Preliminary Examination was made by the 19th month from earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the Internatl. Preliminary Examination report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

International Search Report (EPO)
PCT Request Form
PCT/IB/301 Form
PCT/IB/304 Form
PCT/IB/308 Form
First Page of Publication
Verification of Translation

US APPLICATION NO (If known, see 37 CFR 1.53) <div style="font-size: 24pt; font-weight: bold; text-align: center;">09/423665</div>	INTERNATIONAL APPLICATION NO <div style="text-align: center;">PCT/FR99/00641</div>	ATTORNEY'S DOCKET NUMBER <div style="text-align: center;">P64053US0</div>																																
17. <input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Internatl. prelim. examination fee paid to USPTO (37 CFR 1.492 (a) (1)) . . \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.492 (a) (2)) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) . . \$760.00 Neither international preliminary examination fee (37 CFR 1.492 (a) (3)) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee paid to USPTO (37 CFR 1.492 (a) (4)) and all claims satisfied provisions of PCT Article 33(2)-(4) \$96.00 Search Report prepared by the EPO or JPO (37 CFR 1.492 (a) (5)) \$840.00 <div style="text-align: right;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">CALCULATIONS</td> <td style="width: 50%; text-align: center;">PTO USE ONLY</td> </tr> <tr> <td style="height: 100px; vertical-align: bottom;">\$ 840.00</td> <td></td> </tr> </table>	CALCULATIONS	PTO USE ONLY	\$ 840.00																													
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a. ☒ A check in the amount of \$ 840.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. 06-1358 in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge my account any additional fees set forth in §1.492 during the pendency of this application, or credit any overpayment to Deposit Account No. 06-1358. A duplicate copy of this sheet is enclosed.

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 Washington, DC 20004
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CUSTOMER NUMBER: 00136

By
 D. Douglas Price
 Reg. No. 24,514

JPH/SS 3/95

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Brigitte FALCONNIER

Serial No.: New

Filed: November 22, 1999

For: NOVEL CLEAR BEVERAGE OPTIONALLY ALCOHOLIC CONTAINING ANETHOL AND CLOUDY DILUTED BEVERAGE OBTAINED BY DILUTION

PRELIMINARY AMENDMENT TO LESSEN FEES

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS

Claim 5, line 2, delete "one of claims 1 to 4",

insert --claim 1--;

Claim 6, line 2, delete "one of the preceding claims",

insert --claim 1--;

Claim 8, line 2, delete "one of the preceding claims",

insert --claim 1--;

Claim 9, line 2, delete "one of the preceding claims",

insert --claim 1--;

Claim 11, line 2, delete "one of the preceding claims",

insert --claim 1--;

Claim 13, line 2, delete "one of the preceding claims",

insert --claim 1--;

Claim 14, line 2, delete "one of claims 1 to 12",

insert --claim 1--;

Claim 17, lines 1-2, delete "one of the preceding claims",

insert --claim 1--;

Claim 18, lines 1-2, delete "one of the preceding claims",

insert --claim 1--;

Claim 19, lines 2-3, delete "one of the preceding claims",

insert --claim 1--.

REMARKS

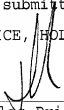
The foregoing Preliminary Amendment is requested in order to delete the multiple dependent claims and avoid paying the multiple dependent claims fee.

Early action on the merits is respectfully requested.

Respectfully submitted,

JACOBSON, PRICE, HOLMAN & STERN, PLLC

By


D. Douglas Price
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Date: November 22, 1999
Atty. Docket: P64053US0
DDP:crj

WO 99/49012

- 1 -

PCT/FR99/00641

420 Rec'd PCT/PTO 22 NOV 1999

NOVEL CLEAR BEVERAGE OPTIONALLY ALCOHOLIC CONTAINING
ANETHOL AND CLOUDY DILUTED BEVERAGE OBTAINED BY
DILUTION

5 The present invention relates to clear beverage optionally alcoholic containing anethol which are intended to be diluted, causing clouding. The invention relates more particularly to aniseed-based spirits with a low alcohol level.

10 Pastis are aperitive beverages consisting of a clear solution of anethol in ethanol. The majority of pastis correspond to 2 g/l solutions of anethol in 45% v/v ethanol.

15 Among consumers there is a desire for beverages of this kind, based on anethol, whose alcohol content is, however, less than 45%; for example, beverages containing only 20% alcohol.

20 For reasons related to the organoleptic qualities of the beverage, it is not possible to reduce the concentration of anethol too greatly; it must remain close to 2 g/l. Under these conditions, it is not possible to dissolve 2 g/l of anethol in 20% alcohol; the immediate result is clouding, which is not commercially acceptable for this type of product. Furthermore, it is
25 necessary to take into account the fact that aniseed-based beverages, although they are required to be clear in the bottle, must become cloudy on addition of water; that is, on dilution with approximately 5 volumes of water.

30 In fact, taking into account the solubility curve of anethol as a function of the alcohol level (figure attached, at 20°C), it appears impossible to dissolve more than about 200 mg of anethol/l in 20% alcohol and more than 400 mg/l in 30%. Above the
35 solubility threshold, the anethol is partially in an insoluble form (oily droplets) and gives a cloudy/milky appearance to the mixture.

Patent Application FR-A-2 638 761 describes a clear ethanolic composition containing anethol, charac-

terized in that it consists of at least one aqueous-ethanolic medium containing from 10 to 30% ethanol v/v and from 1 to 3 g/l of anethol and, in addition, in an amount effective for keeping the composition clear, a
5 surfactant or a mixture of neutral surfactants of formula $R-O-(CH_2-CH_2-O)_nH$, having the following characteristics:

- it is acceptable in human food,
- its HLB is $12 < HLB < 15$,
- 10 - the CMC is $10^{-1} > CMC > 10^{-3}$,

the cloud point being greater than 30°C for a nonionic surfactant and the Krafft temperature being less than 10°C for an ionic surfactant.

The object of the present invention is to provide
15 a novel beverage having similar properties or advantageous properties relative to that described in Patent Application FR-A-2 638 761.

Another object of the present invention is to provide a clear beverage whose solubility threshold is
20 greater, for a given volume of alcohol, than that indicated on the curve attached to the single figure.

Another object of the present invention is to provide a beverage which is stable over time.

Another object of the present invention is to
25 provide a beverage which becomes cloudy when it is diluted with water, and does so as a function of its composition.

The invention therefore first provides a beverage optionally alcoholic containing anethol,
30 characterized in that it comprises an effective amount of at least one phospholipid which is acceptable in human food, in order to improve the solubility of anethol in said beverage.

By "effective" amount is meant an amount sufficient to reduce the turbidity of nonalcoholic or
35 slightly alcoholic beverages containing anethol.

The invention relates in particular to nonalcoholic or slightly alcoholic beverages.

By nonalcoholic beverage is meant, in accordance with legislation, a beverage whose alcohol content is less than 1.2%.

By slightly "alcoholic" are meant beverages
5 whose alcohol level is less than 400 g/l, in particular less than 300 g/l.

Among these phospholipids, mention is made of the phospholipids present in lecithins or derivatives thereof, especially lysolecithins, of vegetable or
10 animal origin. These phospholipids may be present in pure form or in the form of a mixture. Mention is also made of lecithins which are a complex mixture of phosphatides consisting primarily of phosphatidic acid, phosphatidylcholine, phosphatidylethanolamine,
15 phosphatidylserine, lysophosphatidylcholine and phosphatidylinositol, in combination with varying amounts of other substances such as triglycerides, glycolipids, sphingolipids, fatty acids, and carbohydrates.

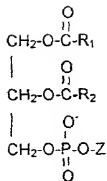
20 It is therefore possible to select either the abovementioned phospholipids or the lecithins containing these phospholipids.

Among the lecithins, mention is made of those of vegetable or animal origin (extracted from soya,
25 eggs).

Among the latter, mention is made of lecithins having highly varied chemical characteristics: crude lecithins such as Epikuron 145®, phosphatidylcholine-enriched fractions such as Epikuron 200®, Ovothin 180
30 or Phospholipon 80®, enzymatically modified lecithins such as Epikuron 200 E® and Sternpur®.

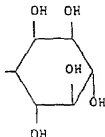
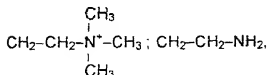
The concentration of the phospholipid or phospholipids, in particular of the lecithin or lecithins, is a function of the type of phospholipids selected and
35 of the alcohol and anethol contents of the beverage.

According to one variant, the phospholipids correspond to the formula indicated below:



in which:

- R₁ and R₂ are identical or different and are C₁₄-C₂₂
 5 fatty acid radicals,
 Z is the hydrogen atom or a radical



- As has already been specified, one of the
 10 features of the invention is to make it possible to
 obtain clear, slightly alcoholic aniseed-based
 beverages. For example, the turbidity is in particular
 less than 100 NTU.

- In a beverage containing optionally a small
 15 amount of alcohol and an amount of anethol greater than
 the solubility threshold (as is the case of the com-
 positions present in zone A of the attached curve), the
 anethol is in insoluble form (oily droplets) and gives
 a cloudy/milky appearance to the mixture. In zone B,
 20 the beverage is clear.

- The clarity of the beverage according to the
 invention results from the fact that it is in the form
 of a submicron emulsion, or microemulsion, composed of
 nanosomes whose average diameter is less than 100 nm,
 25 of the type comprising an anethol-phospholipid phase in
 an aqueous, alcoholic or nonalcoholic phase.

A microemulsion is an emulsion in which the size of the particles is so low (in particular < 100 nm) that the particles are imperceptible to the eye; a clear phase is observed, comparable to a true solution but consisting of an emulsion.

The production of a microemulsion by one or more appropriate surfactants therefore makes it possible to increase the apparent solubility of the anethol with limited percentages of alcohol.

In other words, the emulsifiers make it possible to disperse the essential oil very finely to the point where a so-called "apparent" solubility is obtained (insoluble oil droplets invisible to the human eye).

The anethol contents in question are generally between 0.2 and 10 g/l, and preferably from 0.5 to 2 g/l, whereas the concentration of phospholipids will advantageously be between 0.4 and 30 g/l. The amount of surfactants will increase with the concentration of anethol. Consequently, the ratio by weight between the phospholipid and the anethol is preferably between 0.5 and 10.

The beverage according to the invention contains preferably between 8 to 400 g/l of ethanol; preferably, it is slightly alcoholic, between 40 and 300 g/l of ethanol.

With a view to good quality (fineness of the emulsion) and good stability, all of the components of the formula must be mineralized to the least extent possible and, in particular, must be poorest in divalent cations.

In certain cases, perfect clarity is obtained only after having subjected the emulsion to an appropriate mechanical treatment. The purpose of this treatment is to reduce the droplet size of the emulsion and thus to increase the clarity and the physicochemical stability. Various treatments are found to be satisfactory. By way of example, high-pressure treatments (high-pressure homogenization), or high-speed shear

treatments (high-speed mixer/helical grinder) fulfill this purpose.

- Whatever the treatment employed, it can be applied either to the products or to concentrated formulas with higher anethol and lecithin contents, which will be diluted subsequently.

- The treatments depend on the formula in question; in homogenization, the pressures employed can vary from 20 to 150 Mpa (from 200 to 1500 bars) with one or more cycles; in shear treatment, the application time depends on the volume treated.

- According to the composition of the beverage and the type of phospholipid, especially lecithin, the system appears more or less subject to oxidative mechanisms which result in the incidence of unpleasant olfactory notes or unpleasant tastes. These undesirable mechanisms are prevented/retarded by virtue of the incorporation into the formula of substances which have antioxidant properties. These can be pure molecules or plant extracts containing antioxidant principles. Numerous substances fulfill this function. By way of example, it is possible to employ the following elements: tocopherols, ascorbyl palmitate, tea extracts (green black or others), rosemary extracts or sage extracts. The doses employed are a function of the concentration of active principle and of its effectiveness; of the content and nature of the lecithin in question; of the alcohol content, of the treatments applied to the emulsion (high pressures, etc.).

- The invention is notable in that the emulsion will be required to exhibit clouding as a consequence of its destabilization when an appropriate aqueous solution is added.

- Whatever the emulsion produced, it will exhibit clouding by dilution if the diluent is acidic.

On the other hand, if it is desired to obtain immediate clouding by dilution with a nonacidic aqueous liquid, which constitutes an advantageous variant, the

diluent will have to include one or more mineral dications such as magnesium, calcium, manganese.

- In this case, it is desirable for the beverage according to the invention to comprise one or more compounds which give rise to and/or accelerate the destabilization of the emulsion at the time of dilution, in particular.

- Phenolic compounds fulfill this function appropriately, and the following can be employed by way of example: catechins, gallocatechins, tannins, condensed tannins, gallic tannins, ellagitannins and derivatives (gallic esters, dimers, oligomers, theaflavins, thearubigins, catechin, epicatechin, epigallocatechin, gallocatechin and their mono- and digalloyl esters, etc.), stilbenes, flavonoids (phloretin and derivatives, etc.).

- In this context, it is possible to employ the pure molecules or else a plant extract/concentrate containing one or more of these structures (e.g.: tea leaf extracts (green, black or oolong), ginkgo biloba, fruit extracts: apple, aubepine, guarana, grape, elder; wood, bark, peel, roots and nuts: oak tannins, oak-apple tannins, gambir tannins, grape seeds, Chinese rhubarb roots, clove, cinnamon, licorice, cola, etc.).

- In all cases, the plant extract must be treated before incorporation into the formula, so as to remove all of the divalent cations, by using a cation exchange resin, for example.

- A single plant extract may possess both anti-oxidant properties and those of a clouding "catalyst" on dilution (e.g., tea extract). In the converse case, a number of extracts can be combined. Although the presence in the beverage of phenolic extract or compound is indispensable to the appearance of the clouding when dilution is carried out with water (or with a nonacidic beverage), this clouding is linked to the addition of divalent cations (primarily Ca, Mg, Mn) which are present in the diluent liquid. Therefore, a significant content of one and/or other of these dications in the

diluent medium is indispensable to the mechanism of appearance of cloudiness in the beverage. Therefore, particularly mineralized waters appear favorable to the mechanism.

- 5 Consequently, the beverage according to the invention will contain essentially no dications (magnesium, calcium, manganese) whereas the diluent medium will preferably comprise them. The term "essentially" indicates that the beverage will not contain a sufficient quantity of dications to adversely affect the clarity.

The beverage preferably comprises per liter:

- 15 - from 8 g to 400 g of ethanol, advantageously from 40 to 300 g of ethanol,
 - from 0.2 to 10 g of anethol
 - from 1 to 30 g of phospholipids
 - water q.s. to 1 l, at 20°C

- 20 an effective amount of substances which destabilize the emulsion, especially phenolic compounds, when said beverage is diluted with water containing a sufficient amount of the divalent food cations, one or more antioxidant substances, optionally sugar, especially sucrose, fructose, glucose, maltose, lactose.

- 25 The measurement is made at 20°C, it being understood that the proportions will vary in a known manner at a different temperature.

- 30 The invention additionally relates to the cloudy alcoholic or nonalcoholic beverages obtained by diluting a beverage according to the invention in particular with a mineralized water.

The examples below illustrate the invention.

EXAMPLES

- 35 The beverages of the following examples are produced either by high-pressure treatment ("Lab 40" from APV-Gaulin; "Pony" from Westfalia Separator) or, for low-volume laboratory tests, by treatment with a high-speed grinder/mixer (Ultra-Turrax T25 Janke &

Kunkel at 24,000 rpm for volumes of approximately 10 ml; Polytron Kinematica at maximum speed for volumes of the order of a liter; Silverson L4RT mixer for volumes greater than a liter).

- 5 The sizes of the anethol droplets emulsified in this way are measured by laser granulometry (Malvern "Zetamaster" granulometer) directly without diluting the beverage.

10 The lecithins and fractions (of egg and soya) employed hereinbelow were supplied:
by Lucas-Meyer:

- 15 Epikuron E145 (containing 50% phosphatidylcholine)
Epikuron E200E (consisting essentially of lyso-phosphatidylcholine)
Ovothin 180 (containing 80% phosphatidylcholine)
and by Stern/Nattermann:
20 Phospholipon 80 (containing 80% phosphatidylcholine)
SternpurE (consisting essentially of lyso-lecithins)

Example 1

- 25 7.5 g of anethol and 10 g of Epikuron 145 are dissolved in 1050 g of 96° alcohol. This solution is added to demineralized water (q.s. to 5 l) with stirring. The pre-emulsion obtained is subjected to an APV-Gaulin homogenization treatment: 80 Mpa (800 bars);
30 3 pressure cycles. This beverage does not cloud when it is diluted with water; it clouds when diluted with an acidic beverage of the tonic, cola, or fruit-based acidic beverage type.

35 Example 2

15 g of anethol and 30 g of Phospholipon 80 are dissolved in 2100 g of 96° alcohol. This solution is added to demineralized water (q.s. to 10 l) with stirring. The pre-emulsion obtained is subjected to a

Westfalia Separator homogenization treatment: 1 cycle of 100 Mpa (1000 bars). The average diameter of this emulsion is 10 nm. By way of example, a turbidity of 15 NTU is measured on this type of beverage.

- 5 On dilution, this beverage behaves as in Example 1.

Example 3

- 7.5 g of anethol and 10 g of Epikuron 145 are
10 dissolved in 1050 g of 96° alcohol. This solution is added with stirring to demineralized water containing 1.2 g of catechins extracted from decaffeinated green tea or 75 ml of an aqueous-alcoholic extract of black tea, without dications (water: q.s. to 5 l). The tea
15 extracts here act as antioxidant and clouding catalyst. The pre-emulsion obtained is subjected to an APV-Gaulin homogenization treatment: 80 Mpa (800 bars); 3 pressure cycles. The average diameter of the emulsion produced is 50 nm, and it therefore appears to be relatively
20 clear. With the two types of tea, the beverage clouds when it is diluted with water of the "Evian" type or with an acidic beverage, of the tonic, cola or fruit-based acidic beverage type.

Example 4

- 10 g of anethol and 20 g of Phospholipon 80 are dissolved in 1050 g of 96° alcohol. This solution is added with stirring to demineralized water containing 50 ml of aqueous green tea extract (antioxidant and
30 clouding catalyst), which has been freed of divalent cations by resin exchange (water: q.s. to 5 l). The pre-emulsion obtained is subjected to a Westfalia Separator homogenization treatment 100 Mpa (1000 bars); 2 pressure cycles. The average diameter obtained is
35 25 nm. The beverage is clear, slightly more "bright" to the eye than in Example 3. The turbidity measured on this product is less than 50 NTU. The behavior on dilution is similar to that described in Example 3.

N.B.: The divalent cations can be removed from any ingredient forming part of the composition of the beverage (tea extract, rosemary, etc.) by treatment, for example, on a cation exchange column in N^+ , Na^+ or K^+ form.

Example 5

1.5 g of anethol and 3 g of Phospholipon 80 are dissolved in 210 g of 96° alcohol. This solution is added with stirring to demineralized water containing 0.3 g of oak-apple tannins or 0.5 g of oak tannins (clouding catalyst) and 0.5 g of aqueous rosemary extract (antioxidant), from which divalent cations have been removed by exchange on ion exchange resin (water: q.s. to 1 l). The pre-emulsion obtained is subjected to a Polytron treatment for 5 minutes. The behavior of this beverage on dilution is as in Example 3.

Example 6

0.75 g of anethol and 1.5 g of Phospholipon 80 are dissolved in 105 g of 96° alcohol. This solution is added with stirring to demineralized water containing 6.25 ml/l of phenol-rich apple concentrate (clouding catalyst), neutralized to $\text{pH} = 7$ (water: q.s. to 0.5 l). The pre-emulsion obtained is subjected to a Polytron treatment for 2 minutes. The beverage thus produced, without demineralization of the apple extract, does not appear to be of outstanding clarity (turbidity: 200 NTU) owing to the presence of the divalent cations from the apple. On dilution, it clouds under the same conditions as Example 3. If this same formula is produced under the same conditions but with a low-phenol apple concentrate, the formula does not exhibit clouding when diluted with water of "Evian" type and, like Examples 1 and 2, it clouds solely on addition of an acidic liquid.

If the beverage is produced with a phenol-rich apple extract which is devoid of divalent cations, the

emulsion is clear (turbidity: 82 NTU) and clouds under the same conditions as Example 3.

Example 7

- 1.4 g of anethol and 2.7 g/l of Epikuron 200E are dissolved in 294 g of 96° alcohol. This solution is added with stirring to demineralized water containing 0.360 g of aqueous green tea extract (clouding catalyst and antioxidant), from which divalent cations have been removed by resin exchange (water: q.s. to 1 l). The pre-emulsion obtained is subjected to a Polytron treatment for 5 minutes. The beverage produced is relatively clear and clouds on dilution under the same conditions as Example 3.

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Example 8

- 1.4 g of anethol are dissolved in 294 g of 96° alcohol. This solution is added with stirring to demineralized water containing 1.3 g of Sternpur E and 50 g of sucrose in dissolved form (water: q.s. to 1 l). The pre-emulsion obtained is obtained by virtue of a Silverson L4RT mixer at maximum speed. The formula is clear and does not cloud when diluted with Evian water (cf. Example 1).

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Example 9

- 0.15 g of anethol and 0.8 g of Phospholipon are dissolved in 12.6 g of 96° alcohol. This solution is added with stirring to demineralized water containing 0.12 g of catechins (clouding catalyst and antioxidant) extracted from green tea and devoid of dications (water: q.s. to 0.1 l). The pre-emulsion obtained is subjected to a Polytron treatment for 2 minutes. The beverage thus produced is clear (turbidity: 60 NTU) and its behavior on dilution is as in Example 3.

Example 10

0.1 g of anethol and 0.2 g of Phospholipon are dissolved in 4.2 g of 96° alcohol. This solution is added with stirring to demineralized water containing 2 ml of green tea extract (clouding catalyst and antioxidant) (water: q.s. to 0.1 l). The beverage thus produced is clear (turbidity: 87 NTU) and its behavior on dilution is as in Example 3.

10 Example 11

0.1 g of anethol and 0.2 g of Phospholipon are dissolved in 4.2 g of 96° alcohol. This solution is added with stirring to demineralized water containing 2 ml of green tea extract (clouding catalyst and antioxidant) (water: q.s. to 0.5 l). The beverage thus produced is clear. It clouds slightly on dilution with water of the "Evian" type or with an acidic beverage of the "tonic" or "cola" type, etc., owing to its low anethol content.

20 Example 12

37.5 g of anethol and 96 g of Phospholipon 80 are dissolved in 1050 kg of 96° alcohol. This solution is added with stirring to demineralized water (q.s. to 5 l). This emulsion base containing 25% v/v of alcohol concentrated 5 times is subjected to a double homogenization treatment at 1000B (Westfalia Separator). This clear emulsion (turbidity: 25 NTU) exhibits an average diameter of anethol droplets of 10 nm.

30 This base is used dilute:

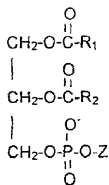
- for example, 0.2 l of this base to which 20 ml of guarana extract or else of cola extract free from minerals (clouding factor) and 0.2 g of rosemary extract, from which divalent cations have been removed by resin exchange (antioxidant) are added, are diluted in a water-alcohol mixture containing 25% alcohol (q.s. to 1 l).

- 5 - or else 1.33 l of concentrated base, 50 ml of green tea extract (antioxidant and clouding factor) and 100 ml of licorice extract from which divalent cations have been removed by resin exchange are diluted in a 25% water alcohol mixture to 5 l.

On dilution, these two formulations behave as in Example 3.

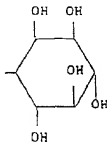
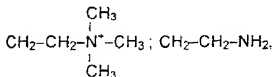
CLAIMS

1. Alcoholic or nonalcoholic beverage containing anethol, characterized in that it comprises an effective amount of at least one phospholipid, acceptable in human food, in order to improve the apparent solubility of the anethol in said beverage.
2. Alcoholic or nonalcoholic beverage according to claim 1, characterized in that the phospholipid is selected from the group of phospholipids present in lecithins or derivatives thereof, especially lysolecithins, of vegetable or animal origin.
3. Alcoholic or nonalcoholic beverage according to claim 2, characterized in that the phospholipid corresponds to the formula:



in which:

- 20 R_1 and R_2 are identical or different and are C_{14} - C_{22} fatty acid radicals,
 Z is the hydrogen atom or a radical



- 25 4. Alcoholic or nonalcoholic beverage according to claim 3, characterized in that the phospholipid is

selected from the group consisting of phosphatidic acid, phosphatidylcholine, phosphatidylethanolamine, phosphatidylserine, phosphatidylinositol, lysophosphatidylcholine.

- 5 5. Alcoholic or nonalcoholic beverage according to one of claims 1 to 4, characterized in that it is clear, having in particular a turbidity of less than 100 NTU.
6. Alcoholic or nonalcoholic beverage according to one of the preceding claims, characterized in that it contains from 0.2 to 10 g/l of anethol, preferably from 0.5 to 2 g/l and from 0.4 to 30 g/l of phospholipids.
7. Alcoholic or nonalcoholic beverage according to claim 6, characterized in that the ratio by weight
15 between the phospholipid and the anethol is between 0.5 and 10.
8. Alcoholic or nonalcoholic beverage according to one of the preceding claims, characterized in that it contains from 8 to 400 g/l of ethanol, preferably from
20 40 to 300 g/l of ethanol.
9. Alcoholic or nonalcoholic beverage according to one of the preceding claims, characterized in that it is in the form of a submicron emulsion, or microemulsion, composed of nanosomes whose average diameter is less than 100 nm, of the type comprising anethol-phospholipid phase in aqueous, alcoholic or
25 nonalcoholic phase.
10. Alcoholic or nonalcoholic beverage according to claim 9, characterized in that the microemulsion is obtained by high-pressure homogenization or by an
30 appropriate mixer at high speed.
11. Alcoholic or nonalcoholic beverage according to one of the preceding claims, characterized in that it comprises one or more antioxidant substances.
- 35 12. Alcoholic or nonalcoholic beverage according to claim 11, characterized in that the antioxidant substance is selected from the group consisting of tocopherols, ascorbyl palmitate, tea extracts, rosemary extracts and sage extracts.

13. Alcoholic or nonalcoholic beverage according to one of the preceding claims, characterized in that it becomes cloudy as the result of an acidic liquid, especially a tonic, by destabilization of the micro-emulsion.
14. Alcoholic or nonalcoholic beverage according to one of claims 1 to 12, characterized in that it comprises an effective amount of one or more substances which bring about the destabilization of the micro-emulsion when the beverage is diluted with water containing a sufficient concentration of divalent food cations.
15. Alcoholic or nonalcoholic beverage according to claim 14, characterized in that the substance is selected from the group consisting of phenolic compounds.
16. Alcoholic or nonalcoholic beverage according to claim 15, characterized in that the phenolic compound is selected from the group consisting of catechins, gallic catechins, tannins, condensed tannins, gallic tannins, ellagitannins and derivatives (gallic esters, dimers, oligomers, theaflavins, thearubigins, catechin, epicatechin, epigallocatechin, gallocatechin and their mono- and digalloyl esters, etc.), stilbenes, flavonoids (phloretin and derivatives, etc.), tea leaf extracts (green, black or oolong), ginkgo biloba, fruit extracts: apple, aubepine, guarana, grape, elder; wood, bark, peel, roots and nuts: oak tannins, oak-apple tannins, gambir tannins, grape seeds, Chinese rhubarb roots, clove, cinnamon, licorice, cola, etc.).
17. Alcoholic beverage according to one of the preceding claims, characterized in that it is essentially free of divalent cations, especially calcium, magnesium and manganese.
18. Alcoholic beverage according to one of the preceding claims, characterized in that it comprises per liter:
- from 8 to 400 g of ethanol, advantageously from 40 to 300 g of ethanol,
 - from 0.2 to 10 g of anethol

- from 0.4 to 30 g of phospholipids

an effective amount of substances which destabilize the emulsion, especially phenolic compounds, when said beverage is diluted with water
5 containing a sufficient amount of the divalent food cations, one or more antioxidant substances, optionally sugar.

19. Alcoholic or nonalcoholic cloudy beverage obtained by diluting a beverage according to one of the
10 preceding claims.

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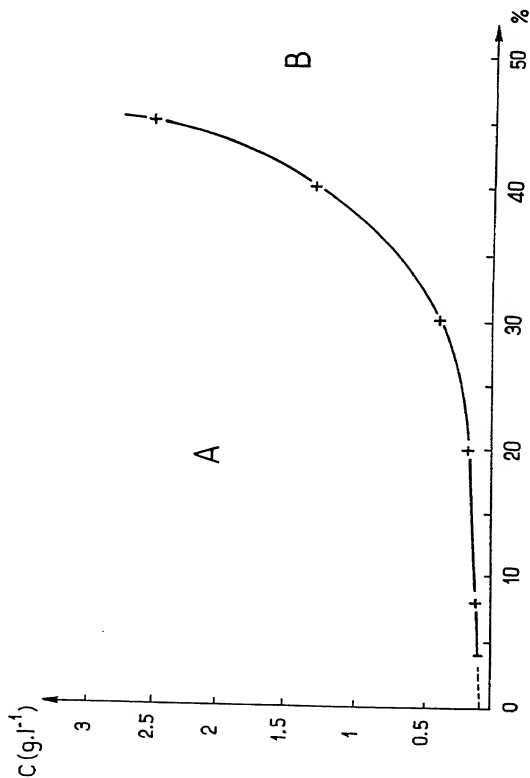


Figure 1

**DECLARATION
AND POWER OF ATTORNEY
U.S.A.**

FOR ATTORNEYS' USE ONLY

ATTORNEYS' DOCKET NO. _____

ALL PATENTS, INCLUDING DESIGN

FOR APPLICATION BASED ON PCT, PARIS CONVENTION;

NON PRIORITY; OR PROVISIONAL APPLICATIONS

As a below named inventor, I declare that my residence, post office address and citizenship are stated below next to my name, the information given herein is true, that I believe that I am the original, first and sole inventor (if only one name is listed at 201 below), or an original, first and joint inventor (if plural inventors are named below at 201-203, or on additional sheets attached hereto) of the subject matter which is claimed and for which patent is sought on the invention entitled:

NOVEL CLEAR BEVERAGE OPTIONALLY ALCOHOLIC CONTAINING ANETHOL AND CLOUDY DILUTED BEVERAGE OBTAINED BY DILUTION

which is described and claimed in: ☐ PCT International Application No. _____ filed _____

☐ the attached specification ☐ the specification in application Serial No. _____ filed _____

(if applicable) and amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed

Prior Foreign Application(s)

98 03534
(Number)

FRANCE
(Country)

23/MARCH/1998
(Day/Month/Year Filed)

Priority Claimed

☒ Yes ☐ No

(Number)

(Country)

(Day/Month/Year Filed)

☐ Yes ☐ No

(Number)

(Country)

(Day/Month/Year Filed)

☐ Yes ☐ No

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

Application No. _____ Filing Date _____ Application No. _____ Filing Date _____

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/FR99/00641
(Application Serial No.)

19 MARCH 1999
(Filing Date)

Pending
(Status: patented, pending, abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys (Registration No.) to prosecute this application, receive and act on instructions from my agent, and transact all business in the Patent and Trademark Office connected therewith. HARVEY B. JACOBSON, JR. (20,851); D. DOUGLAS PRICE (24,514); JOHN CLARKE HOLMAN (22,769); MARVIN R. STERN (20,640); MICHAEL R. SLOBASKY (26,421); JONATHAN L. SCHERER (29, 851); IRWIN M. AISENBERG (19,007); WILLIAM E. PLAYER (31,409)

SEND CORRESPONDENCE TO:

JACOBSON, PRICE, HOLMAN & STERN
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JACOBSON, PRICE, HOLMAN & STERN
PROFESSIONAL LIMITED LIABILITY COMPANY

Inventor(s) name must include at least one unabbreviated first or middle name.

201	FULL NAME* OF INVENTOR	FAMILY NAME	GIVEN NAME	MIDDLE NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	CITY	STATE OR COUNTRY	ZIP CODE
202	FULL NAME* OF INVENTOR	FAMILY NAME	GIVEN NAME	MIDDLE NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	CITY	STATE OR COUNTRY	ZIP CODE
203	FULL NAME* OF INVENTOR	FAMILY NAME	GIVEN NAME	MIDDLE NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	CITY	STATE OR COUNTRY	ZIP CODE

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201*	SIGNATURE OF INVENTOR 202*	SIGNATURE OF INVENTOR 203*
DATE	DATE	DATE